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6 February 1968

MEMORANDUM FOR THE RECORD

SUBJECT : U-2R Seat Kit/Oxygen System

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REFS : (1) [redacted] 8 Dec 67
(2) [redacted] 4 Jan 68
(3) [redacted] 19 Jan 68

1. On 24 November 1967, the pilot of an SR-71 operating out of Beale AFB experienced a serious incident involving his life support system. During high altitude cruise, the pilot experienced difficulty breathing and detected symptoms of hypoxia. Oxygen pressure and quantity guages were normal so the pilot pulled the green apple and discovered that his seat kit mounted personal lead hoses were disconnected, thereby separating him from both the ship's supply of oxygen and the seat kit-contained emergency oxygen supply. The pilot initiated an emergency descent and was able to maintain aircraft control until a safe cabin altitude could be reached.

2. Because the seat kits being used in the U-2R test aircraft were SR-71 kits, and because the new seat kits being produced for production model U-2R's were to have a personal leads locking mechanism identical to the SR-71 kit, LAC test group personnel (particularly [redacted] became very concerned over the incident outlined in paragraph 1 above. As an interim measure [redacted] flew the U-2R with his seat kit personal leads safety-wired to prevent an inadvertent disconnect.

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3. On 5 December 1967 the undersigned attended a meeting at Detachment G to discuss redesign efforts for the U-2R seat kit. Representatives from LAC, ARO of Buffalo and Detachment G attended this meeting and agreed that production of the U-2R kits should be stopped and that a redesign effort be expedited. The redesign effort was to be concentrated on

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two areas: (1) to separate the ship's supply routing from the emergency supply in order to obtain true redundancy, and (2) to improve the locking mechanism holding the emergency personal leads into the seat kit.

4. A follow-up meeting was held at the ARO of Buffalo plant on 20 December 1967 which was to review the status of redesign efforts and to determine an exact course of action. Unfortunately LAC representatives elected not to attend this meeting, so definite results could not be realized. The life support representative from the [redacted] did attend this meeting and therefore became familiar with the alternative solutions being considered regarding the seat kit redesign for the U-2R. 25X1A

5. On 16 January 1968 a meeting was held at LAC, Burbank to finalize the course of action for the U-2R seat kit. The following items were agreed to by the attendees representing Headquarters, Detachment G, ARO of Buffalo and LAC:

A. The dual aircraft oxygen supply leads will be routed to the S-1010 Pilot's Protective Assembly (PPA) through a Seat Mounted Disconnect (SMD), separate from the seat kit/emergency oxygen supply leads to the PPA. The SMD will be identical to the existing DN-21800-5 quick disconnect, used successfully for many years on another aircraft, and will be mounted on the right side of the ejection seat forward of the "scramble handle". This location of the SMD allows the pilot to see and reach the disconnect for either manually engaging or disengaging the personal lead hoses (which lock into the disconnect independently). A pull of 40 to 60 pounds (total) is required to pull the personal leads from the disconnect, which can be exerted either by the pilot by hand or by simply standing up in the cockpit (i.e., for emergency ground egress). During ejection, as the seat leaves the cockpit, a locking pin in the SMD is pulled which automatically releases the personal leads and therefore prevents the pilot from being tied to his seat by his oxygen hoses. The personal lead hoses will be routed through channels in the outer

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cover of the S-1010 PPA from the right thigh region, under the lap belt, and up to the suit penetration fitting on the front right lower quarter of the torso near suit centerline.

B. The seat kit/emergency oxygen system will not be connected to the aircraft oxygen system in any manner, but will represent a completely separate supply and delivery system. The seat kit oxygen supply will be (as previously designed) a "drop-in" system for ease of maintenance and servicing. The Emergency Leads Quick Disconnect (ELQD) will be an entirely redesigned mechanism which will lock the two hoses and "green apple" cable into the seat kit in a positive manner. The locking mechanism will be a one piece bar or pin which will require a horizontal pull (i.e., 90 degrees to the long axis of the hoses) to release the hoses (tied into the seat kit release handle). This locking bar/pin will engage the hoses and cable to the maximum extent possible and will have a visual inspection for go/no-go preflight purposes. The "green apple" cable connection to the ELQD will be improved with respect to positive engagement and go/no-go inspection capability. The hoses from the ELQD will be attached by "Y" fittings to the suit penetration fitting and will also be routed through channels in the outer cover of the S-1010 PPA. The suit penetration fitting with the two "Y" hose fittings will be protected by a metal cover.

6. ARO of Buffalo representatives presented a prototype of the redesigned ELQD to [redacted] (LAC, Burbank) during the week of 29 January 1968 and received approval, with minor changes and additions, to go ahead with qualification of the new hardware. Since all other components of the U-2R seat kit have already been produced (i.e., container, release mechanism, locking components, and drop-in oxygen components), only the ELQD needs to be qualified and produced. As of this date the exact lead time involved has not been determined, but ARO of Buffalo hopes to be able to meet the required delivery schedule with minimal delay. However, it is apparent that the redesigned seat kit will not be ready for delivery in time for the turnover of the first production aircraft

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(#3) to Detachment G in late February 1968. [redacted] of LAC is aware of this and should be taking action to provide an "interim" seat kit on a loan basis so that aircraft #3 can be utilized when delivered. 25X1A

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ASD/R&D/OSA

25X1A ASD/R&D/OSA [redacted] sjs (6 Feb 68)
Distribution:
cy 1 - ASD/R&D/OSA
2 - D/R&D/OSA
3 - D/SA
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5 - D/M/OSA
6 - D/O/OSA
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8 - SAS/O/OSA
9 - COMPT/OSA
10 - PD/COMPT/OSA (Gen. Flickinger)
11 - ASD/R&D/OSA (Chrono)
12 - RB/OSA

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